Kerry Ojakian's MTH 31 Class
Class Assignment #2

Find the domain and range of each function.

1. $f(x) = x + 1$
2. $g(x) = |x + 1|$
3. $h(t) = -t^2 + 1$
4. $f(u) = \dfrac{1}{u^2}$
5. $g(x) = 5$
6. $g(x) = 3 + \sqrt{x}$
7. $h(y) = \sqrt{y - 3}$

Find the x and y intercepts. Find the domain.

8. $g(x) = 2x - 4$
9. $f(x) = \sqrt{2x - 3}$
10. $h(x) = \dfrac{5x + 10}{x + 7}$
11. $f(x) = \dfrac{10}{x + 7}$
12. $h(u) = \dfrac{x^2 - 25}{3x}$

For each pair of functions, find (simplified!) $f + g$, $f - g$, $f \cdot g$, and f/g. Determine the domain of each of these new functions.

13. $f(x) = 2x + 1$ and $g(x) = -5x + 2$
14. $f(x) = 4x$ and $g(x) = 6x$
15. $f(x) = x - 2$ and $g(x) = x^2 + x - 2$
16. $f(x) = x^2 + x - 12$ and $g(x) = 12 - x$
17. $f(x) = \dfrac{2}{x}$ and $g(x) = \dfrac{5}{x}$

For each pair of functions, find (simplified!) $f \circ g$, and $g \circ f$. Determine the domain of each of these new functions.

18. $f(x) = 3x$ and $g(x) = -5x$

19. $f(x) = x + 2$ and $g(x) = 5x$

20. $f(x) = x + 5$ and $g(x) = x - 1$

21. $f(x) = 3x - 9$ and $g(x) = 2x + 1$

22. $f(x) = x^2$ and $g(x) = x^3$

23. $f(x) = 3x^2$ and $g(x) = 5x^3$

24. $f(x) = x^2 - 3$ and $g(x) = 2x^2$

Some more problems.

25. Write a formula for a function that expresses the perimeter of a square.

26. Write a formula for a function which expresses the area of triangle whose base and height are the same.

27. Write a formula for a function that expresses the volume of a cube.